Space Weather Forecast

Issued on Thursday, 03 November 2022 at 01:22 Local

This forecast provides a four day assessment of space weather events. The probabilities stated below are for reaching or exceeding the given levels. For more information about space weather impacts please see the Met Office Space Weather Scales https://www.metoffice.gov.uk/weather/learn-about/space-weather/uk-scales

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Space Weather Forecast Headline: Chance of G1/Minor Storms from 3rd November.

Analysis of Space Weather Activity over past 24 hours

Solar Activity: Solar activity has been Low, with only limited Common-class flares. There are two large mature sunspot regions, one in the northeast and one in the northwest, neither changing significantly or showing marked signs of activity. A region in the southeast has been growing rapidly but shows some signs of stabilising. Two remaining regions are small and weak. No Earth-directed CMEs (coronal mass ejections) have been observed on available imagery.

Solar Wind / Geomagnetic Activity: The solar wind has been slightly elevated through the period, but with a notable increase into elevated levels later in the period as the Earth came under the influence of a modest fast solar wind. Total magnetic field strength increased from weak to moderate levels in the region of the fast wind, with the north-south component, Bz changing from weak, mainly negative variations, to a sharp, moderately negative peak. Geomagnetic activity was Quiet to Active.

Energetic Particles / Solar Radiation: The count rate of energetic particles (High energy protons) remained at background with no solar radiation storms observed.

Four-Day Space Weather Forecast Summary

Solar Activity: Solar activity is likely to be Low or Very Low, with a slight chance of isolated Moderate activity as further active regions are due to rotate onto the visible disc.

Solar Wind / Geomagnetic Activity: No Earth-directed CMEs are forecast. The Earth is under the influence of a fast wind. This is due to subside somewhat early on 3rd November, followed by an anticipated connection to the fast winds from another coronal hole, late on the 3rd into the 4th of November. This feature is currently forecast to produce speeds in the region of 600-650km/s. Geomagnetic activity will be mainly Quiet to Unsettled through much of the period, but with a risk of Active on 3rd November and Active or G1/Minor Storms from late on the 3rd into the 4th of November.

Energetic Particles / Solar Radiation: The count rate of energetic particles (High energy protons) is forecast to persist at background with no solar radiation storms occurring.

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Geomagnetic Storms:

Geo-Magnetic Storm Probability (Exceedance)	Level	Past 24 Hours (Yes/No)	Day 1 (00-24 UTC) (%)	Day 2 (00-24 UTC) (%)	Day 3 (00-24 UTC) (%)	Day 4 (00-24 UTC) (%)
Minor or Moderate	G1 to G2	No	40	40	30	20
Strong	G3	No	1	1	1	1
Severe	G4	No	1	1	1	1
Extreme	G5	No	1	1	1	1

Radio Blackouts - X Ray Flares:

X Ray Flares Probability	Level	Past 24 Hours (Yes/No)	Day 1 (00-24 UTC) (%)	Day 2 (00-24 UTC) (%)	Day 3 (00-24 UTC) (%)	Day 4 (00-24 UTC) (%)
Active	R1-R2 M Class	No	20	20	20	20
Very Active	R3 to R5 X	No	1	1	1	1

Solar Radiation Storms - (High Energy Protons):

Radiation Storms Probability (Exceedance)	Level (cm^{-2} sr^{-1} s^{-1})	Past 24 Hours (Yes/No)	Day 1 (00-24 UTC) (%)	Day 2 (00-24 UTC) (%)	Day 3 (00-24 UTC) (%)	Day 4 (00-24 UTC) (%)
Active	≥ S1	No	1	1	1	1
Very Active	≥ S3 *	No	1	1	1	1

* S3 ≥ 10 MeV ≥ 1000 pfu and / or ≥ 50 MeV ≥ 10 pfu. (pfu = $cm^{-2}sr^{-1}s^{-1}$)

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